Siemens teaches that it is known to have a cylindrical opening in the core with increasing radius. Claim 19 is rejected as above and further in view of Breitenbach, which discloses an outer metal screening and sheath.

It is noted that claims 1-8 and 10-17 are allowed.

The Examiner, in response to Applicants' arguments, notes that Elton teaches three embodiments for cable and that the problem with corona discharge is recognized in motors since other variations of dynamoelectric machines are designed for high voltage applications such as Siemens and Shildneck using round cables. The Examiner inquires why one of ordinary skill in the art would not use semiconducting layers to modify the existing cables, *i.e.*, of the type used in Elton.

The Examiner also asserts that Applicants' argument that the cable for electrical transmission and distribution only is not well understood since the dictionary definition is broader. The Examiner also notes the insulation quality of a cable depends on the insulation used.

Applicants respectfully traverse the Examiner's rejection for the reasons set forth below.

First, it is imperative to understand that although Elton discloses three applications for a pyrolyzed glass layer as a semiconducting material. Nowhere does Elton suggest that a cable of the type described therein could be used as a winding in a dynamoelectric machine. Indeed, the application of a semiconducting material in Elton is for a conventional low voltage, high current machine having rigid windings which are typically formed in sections and which are joined together in the end winding region which employs the insulation described. There is no teaching whatsoever that the cable

which is described in Elton could be substituted for the rigid bars in the machine application. Nor would it be possible to do so because one could not thread the cable of Elton in a dynamoelectric machine such as described in Shildneck. In this connection, the Examiner asserts that the rigidity of the conductor depends on the type of insulation used. However, the arrangement in Shildneck is for a conventional low voltage, high current machine and the insulation is designed for that purpose. Also, Shildneck internally cools the winding precisely because it is operating at high current levels and must be cooled in order to prevent thermal failure.

The standard is not why one of skill in the art would not use the cable in Elton, but whether it would be obvious to do so. Also, it is not for the Applicant to show the negative but it is incumbent on the Examiner to show motivation to do so. And such motivation cannot simply be some generalized desire to apply a principle of electrical engineering or science to solve an unarticulated problem. There is nothing in Shildneck to suggest a desire to operate at high voltage. That desire is expressed by the Applicant. The cable in Elton is just that, namely a cable having a pyrolyzed glass tape semiconducting layer. Likewise the winding in Elton is a rigid winding for a conventional machine having such layer. There is clearly a teaching that the pyrolyzed glass layer is applicable to conventional machine windings and conventional transmission and distribution cables. But there is no suggestion that the cable with the pyrolyzed glass layer could be substituted for the conventional winding having a similar layer. The substitution asserted as obvious by the Examiner is simply not suggested by the reference.

If the Elton cable were substituted for the Shildneck cable, it would be difficult if not impossible to thread the cable in the slots of Shildneck without causing the semiconducting layer to crack and thus establish sites for corona discharge thereby defeating the purpose of the substitution. Further, it is not possible to simply substitute one kind of insulation for another without drastically effecting how the insulation operates, especially at high voltage levels. Although the Examiner correctly asserts that the pyrolyzed glass layer is for providing a ground path in an electric machine, the arrangement is specially formed in the end winding region where the electric field produced by the winding is not confined to within the winding but exists outside of the winding. In the present invention, the insulation layer totally confines the electric field within the cable, and the insulation is generally uniform and not specially modified, i.e. increased in the end winding regions. Indeed, it is doubtful whether the arrangement of Elton would work in a high voltage machine having the end winding treatment disclosed therein.

Siemens may use a round conductor but it does not employ a cable and there is no suggestion that a cable winding would be useful. Siemens uses lengths of round conductors whose insulation increases with voltage. One of ordinary skill in the art would not apply Siemens to the present invention because, in order to achieve a high voltage level contemplated by the invention, the size of the insulated conductor would increase to unmanageable levels. This is because Siemens does not contemplate that the size of the conductor has to be managed in order to increase the voltage. The management of the size of the conductor and the insulation cannot be managed using the

type of insulation known for use in conventional machines. Even the insulation in Elton would not function because it would produce sites for corona discharge.

Applicants also assert that the dictionary definition cited by the Examiner is not sufficient to explain the differences among various technical definitions of a cable. The term, as set forth in the application, has a meaning when taken in the context of the invention. The use of a dictionary definition is not adequate to distinguish among the various types of electrical cables which are possible. Further, there is no suggestion in the references as to why one would wish to use a high voltage cable in a machine. The examples provided by the Examiner are for conventional machines. The power levels contemplated by the invention simply do not contemplate substituting one type of insulation for another. The temptation to simply scale up a conventional machine is understandable but it is not justified. Indeed, as the voltage goes up, the electrical properties of the cable become more important than in a conventional machine where thermal qualities of the winding predominate.

Newly amended claim 18 clarifies the invention by reciting how the winding is formed in parallel concentric layers. The art does not show such a structure. In Enomoto the winding is not a high voltage cable having an insulating covering formed of inner and outer semiconducting layers and an intermediate solid insulation which is threaded through the slots in such a way so as to produce a winding arranged in parallel planes with the windings being concentric as claimed. In the reference the winding is formed in separate sections which are inserted radially in the stator slots. In the invention the winding is continuously threaded into the slots. The reference is for attaining a miniaturized machine. The purpose of the winding arrangement in Enomoto is to reduce

the end winding loop. If the teachings of the reference are applied to the invention it would produce drastically deformed end windings which would greatly stress the insulation at high voltages.

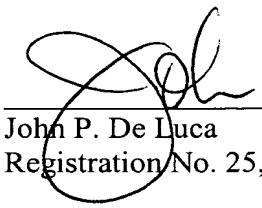
Enomoto is concerned with the problems of assembly of small motors and the desirability of increasing fill factors. The present invention is concerned with producing a high voltage machine using a cable having a specified insulation configuration and disposing the winding in planar layers which are concentric. The windings are formed with ends which would experience reduced vibration in high magnetic fields and which at the same time would be reduced in size.

Claim 20 recites the arrangement more specifically in a slotted core and wherein the end windings are arc shaped and disposed concentrically. The reference does not show or disclose such a structure.

It is believed that the claims fully distinguish the invention over the art of record and the allowance of the claims, along with the claims previously indicated to be allowable, is earnestly solicited.

If filing this paper or any accompanying papers necessitates additional fees not otherwise provided for, the undersigned authorizes the Commissioner to deduct such additional fees from Deposit Account No. 04-2223.

Respectfully submitted,



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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claim 18. (Twice amended)

A high voltage rotating electric machine having [with] a magnetic circuit [for high voltage wherein the magnetic circuit comprises] comprising:

a stator having a magnetic core, said stator being formed with axial slots, and

a [layered] winding in the form of a cable being continuously threaded in the stator slots in a plurality of parallel layers and wherein the winding in each of said plurality of layers being concentric, said cable comprising [one or more] a conductor[,each conductor] including a [number of strand parts] plurality of conductive strands, an inner semiconducting layer surrounding the inner layer, [around each conductor, an] a solid insulating layer surrounding the inner layer, [around the semi-conducting layer], and an outer semiconducting layer surrounding [around] the insulating layer[, the cable being continuously threaded in the stator in a plurality of planar layers formed with concentric end winding portions].